CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Previously Presented) A radio communication system having a communication channel comprising a plurality of paths between a transmitter having a plurality of antennas and a receiver having at least one antenna, wherein the transmitter comprises:

path characterization means for determining at least one transmission property of each path of said plurality of paths,

data categorization means for determining and assigning a data quality category to a set of data for transmission, said data categorization means being adapted to assign different categories to different segments of the set of data from an application; and

mapping means responsive to said path characterization means and said data categorization means for determining a mapping to apply the set of data to the transmitter's plurality of antennas such that the set of data is transmitted over a path or paths in which the determined data quality of the set of data corresponds to the at least one transmission property of the path or paths, thereby determining over which path or paths the set of data will be transmitted.

2. (Previously Presented) A system as claimed in claim 1, wherein the receiver comprises means for performing channel estimation and means for signaling details of the output of the channel estimation to the path characterization means.

3. (Previously Presented) A transmitter for use in a radio communication system having a communication channel comprising a plurality of paths between a transmitter having a plurality of antennas and a receiver, wherein

path characterization means for determining at least one transmission property of each path of said plurality of paths,

data categorization means for determining and assigning a data quality category to a set of data for transmission, said data categorization means being adapted to assign different categories to different segments of the set of data from an application; and

mapping means responsive to said path characterization means and said data categorization means for determining a mapping to apply the different portions of the set of data to respective ones of the transmitter's plurality of antennas such that a data portion transmitted over a path having a determined data quality corresponds to the at least one determined transmission property of the path, thereby determining over which path or paths the set of data will be transmitted.

4. (Previously Presented) A transmitter as claimed in claim 3, wherein data for transmission may be provided from a plurality of sources and wherein the data categorization means is adapted to assign said data quality category depending on the source of the data.

5. (Previously Presented) A transmitter as claimed in claim 3, wherein the data categorization means is adapted to assign the different categories to the respective segments of the data from an application depending on at least one of (i) their relative importance, (ii) required quality of service, (iii) data rate, (iv) tolerable transmission delay and (v) tolerable error rate.

6. (Previously Presented) A transmitter as claimed in claim 3, wherein the path characterization means is adapted to determine said at least one transmission property comprising at least one of a delay, a signal-to-noise ratio, and a required transmission power for a given signal-to-noise ratio or error rate for each path.

7. (Previously Presented) A transmitter as claimed in claim 3, wherein parameter selection means are provided for setting at least one transmission parameter relating to the data depending

on at least one of the path (or paths) assigned for transmission of the data and the data quality category assigned to the data.

8. (Previously Presented) A transmitter as claimed in claim 7, wherein a transmission parameter specifies the type of error control coding added to the data.

9. (Previously Presented) A transmitter as claimed in claim 7, wherein a transmission parameter specifies the modulation scheme to be used for transmission of the data.

10. (Previously Presented) A transmitter as claimed in claim 7, wherein a transmission parameter specifies the transmission power of each of the antennas, thereby enabling a particular signal-to-noise ratio to be achieved for at least one signal path.

11. (Original) A transmitter as claimed in claim 3, characterized by being distributed at a plurality of spatially-separated sites, each site comprising at least one antenna.

12. (Previously Presented) A transmitter as claimed in claim 3, wherein the path characterization means are adapted to determine properties of the paths at least partly from measurements made by the receiver and signaled to the transmitter.

13. (Previously Presented) A method of operating a radio communication system having a communication channel comprising a plurality of paths between a transmitter having a plurality of antennas and a receiver having at least one antenna, the method comprising the acts of:

(i) the transmitter determining at least one transmission property of each path,

(ii) assigning different categories to different segments of a set of data from an application for transmission, and

(iii) determining a mapping to apply the set of data to the transmitter's plurality of antennas such that different portions of the set of data are transmitted over a respective path such

that a determined data quality of said data portion corresponds to the determined at least one transmission property of the path, thereby determining over which path or paths the data will be transmitted.

14. (Previously Presented) A method as claimed in claim 13, characterized by transmitting data requiring a higher quality of service over a higher quality sub-channel and further transmitting data requiring a lower quality of service over a lower quality sub-channel.